

REMARKSClaim Status:

Claims 1-28 are pending in the present application.

Claims 24, 25 and 28 have been amended per the Examiner's helpful suggestion (i.e., the term "method" has been replaced by "robot"). Claim 27 depends from claim 17 (a method claim), so no change is deemed necessary.

Claim 6 has been broadened by removing the terms "printed image containing."

Claim 12 has been amended to give weight to its preamble and to add the word "orientation." (Claim 12 has also been broadened with the removal of "printed image containing.")

Applicant submits that no new matter has been added by this amendment.

Drawings

We believe Figures 4A – 4C provide sufficient information for one of ordinary skill in the art to understand their significance when read in conjunction with applicant's specification description on page 4, line 19 – page 5, line 10.

These figures illustrate a simple example orientation component (e.g., a watermark "grid" signal) in a frequency domain. Figure 4A shows an expected response at a fixed or known image capture distance (a distance of X). Figure 4B shows an expected response at an image capture distance that is further than X and Figure 4C show an expected distance that is shorter than X.

A physical distance can be determined for the Figure 4B and Figure 4C capture distances based on the Figure 4A known distance. (Similarly, the specification sections describe how to determine rotational characteristics of the grid based on a frequency domain response.)

Nevertheless, a Replacement Sheet for Figures 4A-4C is provided herewith with some additional commentary. Support for the commentary is found, e.g., at the page 4, line 19 – page 5, line 10 specification sections.

Favorable consideration is respectfully requested.

Art-Based Rejection

Claims 12-16 and 21-16 stand rejected as being unpatentable over Wang (U.S. Patent No. 5,113,445) in view of Rhoads (U.S. Patent No. 5,862,260).

Claims 1-11, 17-20 and 27-28 stand rejected as being unpatentable over Wang in view of Rhoads and Schaffer (U.S. Patent No. 6,282,528).

We respectfully traverse these rejections.

Claim 21

The cited Wang passages seem concerned with data (e.g., binary data) encoded in a 2-D graphic. A decoding operation decodes a 2-D graphic and generates output signals to represent the data (Col. 2, lines 53-55).

This data may be in the form of machine operating instructions to control a “robotic system” (Col. 6, lines 6-11).

While Wang is concerned with data, it seems silent with respect to orientation or position information associated with the encoded 2-D graphic.

Indeed, there is no mention of an orientation component in the 2-D graphic used to determine position information for an item.

Rhoads is an excellent treatise on digital watermarking. And the cited Col. 72 sections do describe some examples of an orientation component envisioned by claim 21.

But the cited Col. 95 section (discussing automobile and airline parts) is concerned with security (or thwarting counterfeiting). There is no mention in the cited Rhoads sections of a robot to handle items and determining an orientation of an item (e.g., a part) and providing physical position information there from.

Thus, even if the cited sections are combined as suggested, the resulting combination would not yield applicant's claimed invention (claim 21).

Favorable reconsideration is requested.

Claim 12

Amended claim 12 recites a controller for controlling a robot in response to orientation data acquired from a digital watermark. The controller controls positioning or movement of an item including the digital watermark.

As discussed above, Wang seems ambivalent to acquiring orientation data from a machine-readable code. (Wang also does not discuss controlling a position or movement of an item.).

And, while Rhoads is ground-breaking in many ways, the cited portions do not discuss controlling a robot to position or move an item including a digital watermark in response to orientation data acquired from the digital watermark.

Favorable reconsideration is requested.

Claim 1

Claim 1 recites a method to control placement of a first part on a second part. The method includes reading a grid signal contained in a digital watermark, and determining angular rotation of at least one of two parts from the grid signal.

Wang does not recite such a grid signal. Nor does Wang contemplate controlling placement of a first part on a second part.

The cited Rhoads passages are not understood to discuss placement of a first part on a second part with reference to an angular rotation of a grid signal carried by one of the parts.

Schaffer is cited as teaching a vision alignment system, but Schaffer is not understood to teach or suggest a digital watermark including a grid signal. Nor is there any suggestion to combine with Wang or Rhoads for at least the reasons discussed above.

Favorable reconsideration is requested.

Claim 17

Wang fails to teach or suggest a method to control placement of a first part on a second part or that the first part includes steganographic encoding redundantly provided thereon, with the steganographic encoding including an orientation component.

Wang does not teach or suggest determining an orientation of the first part through reference to at least the orientation component of the steganographic encoding.

The cited Rhoads passages are not understood to discuss placement of a first part on a second part through reference to at least the orientation component of the

steganographic encoding. (Instead, the cited Col. 95 passage deals with object security, e.g., thwarting piracy.)

Schaffer is cited as teaching a vision alignment system, but Schaffer is not understood to teach or suggest steganographic encoding including an orientation component. Nor is there any suggestion to combine with Wang and Rhoads for at least the reasons discussed above.

Favorable reconsideration is respectfully requested.

Claim 6

Claim should be allowed for reasons analogous to those discussed above.
Favorable reconsideration is requested.

Remaining Claims

The remaining claims are also believed to recite patentable combinations.
Favorable reconsideration is respectfully requested.

Conclusion

The application is believed to be in condition for allowance. Nevertheless, the Examiner is invited to telephone the undersigned at 503-469-4685 if any questions remain.

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Respectfully submitted,

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